

WHAT IS CLAIMED IS:

- 1 1. A method, comprising:
2 requesting, by a network storage driver, a connection from an offload application,
3 wherein the offload application interfaces with a first network stack implemented in an
4 operating system and a second network stack implemented in a hardware device;
5 receiving the connection from the offload application, wherein the received
6 connection is an offloaded connection and is reserved for the network storage driver; and
7 communicating data over the offloaded connection through the hardware device.
- 1 2. The method of claim 1, wherein communicating the data over the
2 offloaded connection further comprises:
3 sending the data directly from the network storage driver to a hardware driver for
4 the hardware device, wherein the network storage driver uses the second network stack
5 implemented in the hardware device to communicate with a storage area network.
- 1 3. The method of claim 1, further comprising:
2 releasing the offloaded connection to the offload application, wherein the
3 offloaded connection is no longer reserved for the network storage driver.
- 1 4. The method of claim 1, further comprising:
2 receiving the request for the connection at the offload application;
3 generating, by the offload application, the offloaded connection;
4 reserving, by the offload application, the offloaded connection for the network
5 storage driver; and
6 sending the offloaded connection to the network storage driver.
- 1 5. The method of claim 1, wherein the connection is a Transmission Control
2 Protocol / Internet Protocol connection included in a file descriptor sent from the offload

3 application to the network storage driver, and wherein the file descriptor includes a port
4 address that is reserved for the network storage driver.

1 6. The method of claim 1, wherein the network storage driver implements an
2 Internet Small Computer Systems Interface protocol for communicating with a target
3 storage device through the hardware device.

1 7. The method of claim 1, wherein the first network stack and the second
2 network stack do not implement an Internet Small Computer Systems Interface protocol.

1 8. The method of claim 1, wherein the first network stack and the second
2 network stack comprise an Internet address family and a Transmission Control protocol
3 implemented over an Internet Protocol network layer, wherein the offload application can
4 offload a network communication request to the second network stack in preference to
5 the first network stack, and wherein a single stack behavior is maintained by the first and
6 second network stacks to applications and network management utilities.

1 9. The method of claim 1, wherein the hardware device is a Transmission
2 Control Protocol offload engine adapter, and wherein a network communication request
3 for communicating the data is processed faster in the second network stack in comparison
4 to the first network stack.

1 10. A system, comprising:
2 a processor; and
3 program logic including code that is capable of causing the processor to be
4 operable to:
5 request, by a network storage driver, a connection from an offload
6 application, wherein the offload application interfaces with a first network stack

7 implemented in an operating system and a second network stack implemented in a
8 hardware device;
9 receive the connection from the offload application, wherein the received
10 connection is an offloaded connection and is reserved for the network storage driver; and
11 communicate data over the offloaded connection through the hardware
12 device.

1 11. The system of claim 10, wherein the program logic is further capable of
2 causing the processor to be operable to:
3 send the data directly from the network storage driver to a hardware driver for the
4 hardware device, wherein the network storage driver uses the second network stack
5 implemented in the hardware device to communicate with a storage area network.

1 12. The system of claim 10, wherein the program logic is further capable of
2 causing the processor to be operable to:
3 release the offloaded connection to the offload application, wherein the offloaded
4 connection is no longer reserved for the network storage driver.

1 13. The system of claim 10, wherein the program logic is further capable of
2 causing the processor to be operable to:
3 receive the request for the connection at the offload application;
4 generate, by the offload application, the offloaded connection;
5 reserve, by the offload application, the offloaded connection for the network
6 storage driver; and
7 send the offloaded connection to the network storage driver.

1 14. The system of claim 10, wherein the connection is a Transmission
2 Control Protocol / Internet Protocol connection included in a file descriptor sent from the

3 offload application to the network storage driver, and wherein the file descriptor includes
4 a port address that is reserved for the network storage driver.

1 15. The system of claim 10, wherein the network storage driver implements
2 an Internet Small Computer Systems Interface protocol for communicating with a target
3 storage device through the hardware device.

1 16. The system of claim 10, wherein the first network stack and the second
2 network stack do not implement an Internet Small Computer Systems Interface protocol.

1 17. The system of claim 10, wherein the first network stack and the second
2 network stack comprise an Internet address family and a Transmission Control protocol
3 implemented over an Internet Protocol network layer, wherein the offload application can
4 offload a network communication request to the second network stack in preference to
5 the first network stack, and wherein a single stack behavior is maintained by the first and
6 second network stacks to applications and network management utilities.

1 18. The system of claim 10, wherein the hardware device is a Transmission
2 Control Protocol offload engine adapter, and wherein a network communication request
3 for communicating the data is processed faster in the second network stack in comparison
4 to the first network stack.

1 19. A system, comprising:
2 a computational platform;
3 a storage controller implemented in the computational platform;
4 a processor coupled to the computational platform;
5 an offload adapter coupled to the computational platform; and
6 program logic including code that is capable of causing the processor to be
7 operable to:

8 request, by a network storage driver, a connection from an offload
9 application, wherein the offload application interfaces with a first network stack
10 implemented in an operating system and a second network stack implemented in the
11 offload adapter;
12 receive the connection from the offload application, wherein the received
13 connection is an offloaded connection and is reserved for the network storage driver; and
14 communicate data over the offloaded connection through the offload
15 adapter.

1 20. The system of claim 19, wherein the program logic is further capable of
2 causing the processor to be operable to:
3 release the offloaded connection to the offload application, wherein the offloaded
4 connection is no longer reserved for the network storage driver.

1 21. The system of claim 19, wherein the program logic is further capable of
2 causing the processor to be operable to:
3 receive the request for the connection at the offload application;
4 generate, by the offload application, the offloaded connection;
5 reserve, by the offload application, the offloaded connection for the network
6 storage driver; and
7 send the offloaded connection to the network storage driver.

1 22. An article of manufacture, comprising a storage medium having stored
2 therein instructions capable of being executed by a machine to:
3 request, by a network storage driver, a connection from an offload application,
4 wherein the offload application interfaces with a first network stack implemented in an
5 operating system and a second network stack implemented in a hardware device;
6 receive the connection from the offload application, wherein the received
7 connection is an offloaded connection and is reserved for the network storage driver; and

8 communicate data over the offloaded connection through the hardware device.

1 23. The article of manufacture of claim 22, wherein the instructions are
2 further capable of being executed by a machine to:
3 send the data directly from the network storage driver to a hardware driver for the
4 hardware device, wherein the network storage driver uses the second network stack
5 implemented in the hardware device to communicate with a storage area network.

1 24. The article of manufacture of claim 22, wherein the instructions are
2 further capable of being executed by a machine to:
3 release the offloaded connection to the offload application, wherein the offloaded
4 connection is no longer reserved for the network storage driver.

1 25. The article of manufacture of claim 22, wherein the instructions are
2 further capable of being executed by a machine to:
3 receive the request for the connection at the offload application;
4 generate, by the offload application, the offloaded connection;
5 reserve, by the offload application, the offloaded connection for the network
6 storage driver; and
7 send the offloaded connection to the network storage driver.

1 26. The article of manufacture of claim 22, wherein the connection is a
2 Transmission Control Protocol / Internet Protocol connection included in a file descriptor
3 sent from the offload application to the network storage driver, and wherein the file
4 descriptor includes a port address that is reserved for the network storage driver.

1 27. The article of manufacture of claim 22, wherein the network storage driver
2 implements an Internet Small Computer Systems Interface protocol for communicating
3 with a target storage device through the hardware device.

1 28. The article of manufacture of claim 22, wherein the first network stack
2 and the second network stack do not implement an Internet Small Computer Systems
3 Interface protocol.

1 29. The article of manufacture of claim 22, wherein the first network stack
2 and the second network stack comprise an Internet address family and a Transmission
3 Control protocol implemented over an Internet Protocol network layer, wherein the
4 offload application can offload a network communication request to the second network
5 stack in preference to the first network stack, and wherein a single stack behavior is
6 maintained by the first and second network stacks to applications and network
7 management utilities.

1 30. The article of manufacture of claim 22, wherein the hardware device is a
2 Transmission Control Protocol offload engine adapter, and wherein a network
3 communication request for communicating the data is processed faster in the second
4 network stack in comparison to the first network stack.